

Docket No. 1759.140
U.S. Serial No.: 10/690,768

REMARKS

Without acquiescing to the propriety of the rejections in the Office Action dated June 27, 2005, claim 1 has been amended and new claims 8 and 9 have been added. Reconsideration of the above-identified patent application and allowance of all claims are respectfully requested in view of the remarks below. Claims 1-9 are now pending.

Claim Rejections Under 35 U.S.C. § 102 and § 103:

Claims 1-3 and 6-7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative obvious under § 103(a) over U.S. Patent No. 6,228,312 to Boyce.

Amended claim 1 of the present application recites a reinforcing tape which includes a ply of longitudinal aramid-, glass-, or carbon-based high-tenacity yarns bound together by weft yarns. The tape includes two thermal plastic films, each placed on a respective different side of the ply of high-tenacity yarns. The tape is flexible to allow the tape to be wound around, and to conform to a shape of, an object to be reinforced. The ply of yarns is configured to reinforce the object when the tape is wound around the object.

Boyce discloses a liner for rehabilitating a pipe which is introduced into the pipe in a contracted form and expanded into contact with the wall of the pipe. However, there is no disclosure in this reference of a reinforcing tape, nor aramid-, glass-, or carbon-based high-tenacity yarns being bound together by weft yarns, as recited in claim 1. Further, there is no disclosure of the tape being flexible to allow it to be wound around, and to conform to a shape of, an object to be reinforced, nor a ply of yarns being configured to reinforce the object when the tape is wound around it. Instead, Boyce discloses a liner for use in repairing a pipe and glass reinforcing fibers and thermo plastics which are longitudinally aligned as depicted in FIGS. 1a, 1b, and 5 and 6, but there is no disclosure of weft yarns binding together such high-tenacity yarns. Further, Boyce discloses a liner which is expanded to reinforce an inner side of a pipe, but there is no disclosure of tape which is wound around a structure to be reinforced. Accordingly, because all the features (e.g., a reinforcing tape have high-tenacity yarns bound together by weft yarns, the tape being flexible to allow it to be wound around, and to conform to a shape of, an object to be reinforced, and a ply of yarns being configured to reinforce the object when the tape is wound therearound) of claim 1 of the present application are not identically disclosed by Boyce, this claim cannot be anticipated thereby.

Further, there would be no reason for one skilled in the art to arrive at the present invention based on the disclosure in Boyce. The reinforcing tapes disclosed in the present application are utilized by

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winding them around various structures to reinforce them which is directly opposed to the use in Boyce of inserting a liner inside a structure and inflating it to reinforce the internal surface thereof. Accordingly, there would be no reason for one skilled in the art to attempt to utilize the liner of Boyce in the manner of the tape in the present application since the objectives of the liner and tape are directly opposed (i.e., reinforcing an internal surface by internal pressure versus reinforcing an exterior surface by winding a tape around the exterior surface). Further, as noted above, this reference does not disclose high-tenacity yarns being bound together by weft yarns nor high-tenacity yarns configured to reinforce an object around which they are wound. Accordingly, there would be no reason to utilize the liner in Boyce as a tape and even if there was such a reason, Boyce would not disclose all the elements of claim 1 of the present application. Claim 1 therefore cannot be anticipated, nor made obvious, by Boyce. The dependent claims are believed not to be anticipated, nor made obvious, for the same reasons and for their own additional features.

Claims 1-2 and 5-7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative obvious over, Dana (International Publication No. WO 02/22354).

Dana discloses a resin compatible fabric which may be inserted into a laminate comprising a matrix for the purpose of producing printed circuit boards. A fabric is disclosed as being impregnated by a matrix to form a rigid material. However, there is no disclosure of high-tenacity yarns with thermoplastic films being placed on respective different sides of a ply of high-tenacity yarns to form a reinforcing tape as recited in claim 1 of the present application. Further, there is no disclosure of a reinforcing tape which is flexible to allow it to be wound around, and to conform to a shape of, an object to be reinforced, nor yarns configured to reinforce the object when the tape is wound therearound. Instead, Dana merely discloses a fabric which is impregnated by a matrix to make the fabric rigid, but it does not disclose a flexible reinforcing tape. Further, the high-tenacity yarns recited in claim 1 and described in the specification possess a certain degree of freedom and flexibility to allow the yarns a freedom of movement within two thermoplastic films in contrast to the rigidity of the impregnated fabric disclosed in Dana. Thus, because Dana does not even disclose a flexible reinforcing tape, nor would it be obvious to arrive at the tape of the present invention based on the disclosure in Dana, this reference cannot anticipate, nor make obvious, the subject matter of claim 1 or the dependent claims.

Claim Rejections Under 35 U.S.C. § 103:

Claim 5 stands rejected under 35 U.S.C. § 103(a) as being obvious over Boyce in view of Lusk (U.S. Patent No. 4,578,293). This claim is believed to be allowable for the same reasons as those described above for its base independent claim and for its own additional features.

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Claims 1 and 3 stand rejected under 35 U.S.C. § 103(a) as being obvious over Gilbert (U.S. Patent No. 4,781,958) in view of Bompard et al. (U.S. Patent No. 5,014,755).

Gilbert discloses a tape utilized to allow one to detect underground non-metallic objects such as plastic pipe. In particular, the tape is placed on the non-metallic body thereby allowing it to be detected by a metal detector. The tape includes a ductile metal foil layer enclosed in a sheath of thermoplastic coating. Further, the tape does not have a tendency to curl up the edges or twist, and it lies flat as described in lines 57-60 of column 2.

Bompard discloses a composite textile structure which includes a textile layer having filaments impregnated and/or coated with thermoplastic material which allows laminates exhibiting improved mechanical properties to be produced as described in lines 50-55 of column 1. The thermoplastic material is secured to the different threads of the weave disclosed therein to increase rigidity of the article which includes the textile. The textile is especially designed for the manufacture of laminates as described in lines 55-60 of column 3.

As noted above, claim 1 recites, inter alia, a tape which is flexible to allow the tape to be wound around, and to conform to a shape of, an object to be reinforced and a ply of yarns configured to reinforce the object when the tape is wound therearound. The tape disclosed in Gilbert is utilized to allow detection of non-metallic structures and is flat without a tendency to curl or twist. Gilbert thus cannot disclose a flexible tape which is wound around, and conforms to the shape of, a structure to be reinforced, nor yarns configured to reinforce an object which the tape is wound around. Further, Bompard discloses a textile suitable for being laminated which is designed to increase rigidity of an article. Bompard thus teaches away from the flexible tape recited in claim 1. Accordingly, a combination of these references cannot result in the subject matter of claim 1 of the cited reference since neither reference, nor their combination, discloses a flexible reinforcing tape which may be wound around, and conform to the shape of, an object to be reinforced, nor yarns configured to reinforce such an object. Accordingly, claim 1 cannot be obvious over these references. The dependent claims are not believed to be obvious for the same reasons and for their own additional features.

Claims 2 and 6-7 stand rejected under 35 U.S.C. § 103(a) as being obvious over Gilbert in view of Bompard and further in view of Park (U.S. Patent No. 5,547,536). These claims are believed to be allowable for the same reasons as their base independent claims and for their own additional features.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being obvious over Gilbert in view of Bompard and further in view of Osborn et al. (U.S. Patent No. 3,830,067). In particular, the Office Action

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states that Gilbert does not specifically mention bonding edges of thermoplastic films such that the reinforced material is capable of sliding inside the sheath formed by thermoplastic films. Osborn is alleged to disclose edges of two thermoplastic films being sealed by passing the edges between heated rollers or by using a suitable solvent that softens the edges to permit bonding as disclosed in column 5, lines 45-56. It is alleged that it would have been obvious to seal the edges disclosed in Gilbert by any suitable method such as taught by Osborn.

Osborn et al. discloses an irrigation system which includes flexible tubing formed by webs or strips of thermoplastic material heat-sealed along edges thereof. This reference also discloses one side of the flexible tubing being permeable. There is no disclosure in this reference of ply of reinforcing tape being included in a cavity of the irrigation system disclosed therein. Further, the permeable nature of the irrigation tube would negate the purpose of separating the ply of adjacent reinforcing tape, as described on page 4 of the present application, by allowing the ply of adjacent tapes to contact each other through irrigation openings in the irrigation tube as taught by Osborn et al. Accordingly, Osborn et al. would teach away from the thermoplastic films of the present invention, and the alleged combination would make any resulting device unsatisfactory for the intended purpose of protecting the plies of adjacent tapes from contacting one another as described on page 4 of the present application.

As described above, there would be no reason to combine Osborn et al. with Gilbert or Bompard. Moreover, even if Bompard and Gilbert were combined, they would not result in the subject matter of claim 1 of the present application, and thus their combination could not make obvious claim 4. Further, there is no disclosure in any of the references which would teach, disclose or suggest longitudinal yarns being capable of sliding inside a sheath formed by two thermoplastic films particularly since the Osborn et al. device is utilized for irrigation, not reinforcing tape. Thus, claim 4 is believed to be allowable.

New Claims 8 and 9:

New claim 8 has been added to recite the thermoplastic films of claim 1 avoiding penetrating into the ply recited therein. Further, new claim 9 recites, inter alia, a system for reinforcing a structure which includes the tape of claim 1 and a second tape, and wherein the ply of claim 1 avoids contact with a ply of the second tape and is separated by a thermoplastic film of the first tape and a thermoplastic film of the second tape. No new matter has been added and these claims are believed to be allowable.

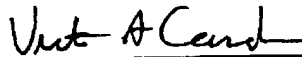
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CONCLUSION

It is believed that the application is in condition for allowance, and such action is respectfully requested.

If a telephone conference would be of assistance in advancing prosecution of the subject application, the Examiner is invited to telephone the undersigned attorney at the telephone number provided.

Respectfully submitted,



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